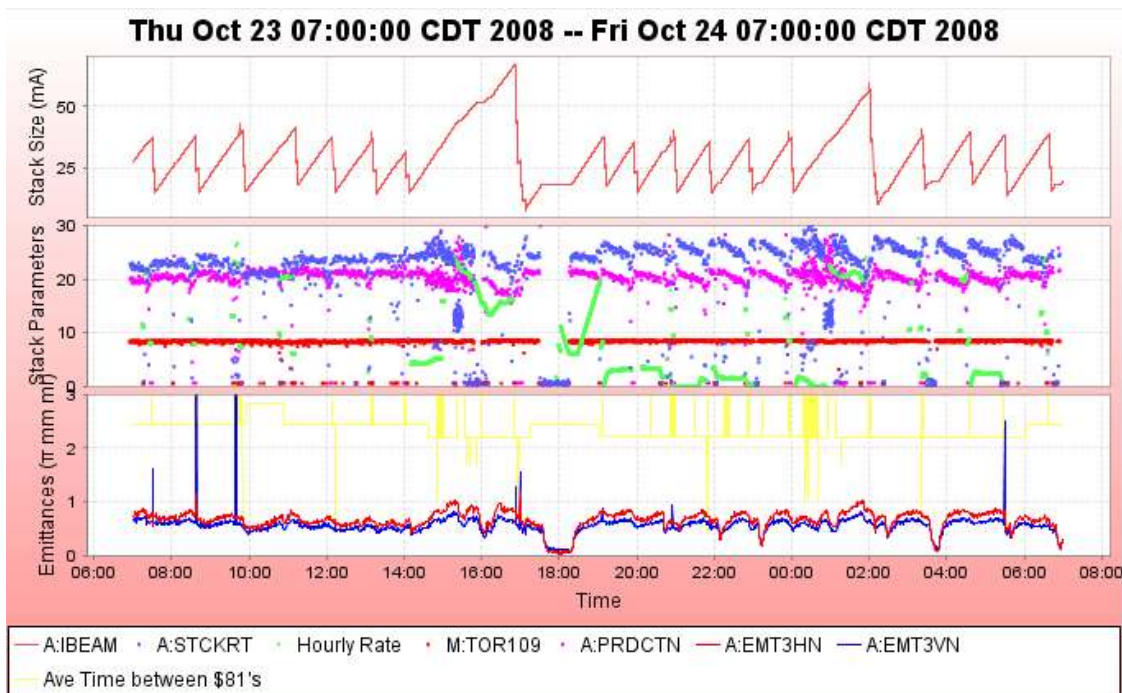


## Stacking

- Performance
  - Most in an hour: 24.23 mA at Fri Oct 24 03:12:12 CDT 2008
  - Average Production 19.75 e-6/proton
  - Pbars stacked: 496.83 E10 in 23.05 hours.
- s



## Transfers

- We unstacked 505e10 in 43 transfers over 19 sets.
  - Accumulator to MI efficiency was 97%
  - Accumulator to RR efficiency was 95.5%
  - Both numbers are up from yesterday.

Column 1 Number _0_Pbar	Column 4 Number_3_Transfer Time		Column 21 Number _20_A:IB	Unstacked (mA)	Column 24 Number _23_R:BE	Stashed	Acc to RR Eff	Column 27 Number _26_MI DCCT SMALL	Column 28 Number _27_MI Before	Acc to MI Eff	Acc to MI2 Eff	Transfer s	Sets
	<b>Totals =&gt;</b>	<b>7:00:00 AM</b>		<b>504.57</b>		<b>482.02</b>	<b>95.53%</b>	<b>491.27</b>	<b>491.08</b>	<b>97.36%</b>	<b>97.33%</b>	<b>43</b>	<b>19</b>
9729	Friday, October 24, 2008	6:37:46 AM	38.10	24.07	141.99	23.13	96.12%	23.28	23.35	96.66%	97.02%	2	1
9728	Friday, October 24, 2008	5:29:43 AM	37.43	24.60	119.07	23.70	96.33%	24.11	24.08	97.98%	97.89%	2	1
9727	Friday, October 24, 2008	4:36:09 AM	39.00	22.64	95.52	21.49	94.93%	22.04	22.11	97.34%	97.65%	2	1
9726	Friday, October 24, 2008	3:22:45 AM	37.59	22.71	74.24	21.76	95.82%	22.18	22.14	97.69%	97.51%	2	1
9725	Friday, October 24, 2008	2:02:15 AM	56.45	50.36	52.65	47.96	95.24%	49.03	48.79	97.35%	96.89%	4	1
9724	Thursday, October 23, 2008	11:59:27 PM	36.88	23.34	198.17	22.38	95.88%	22.87	22.67	97.97%	97.12%	2	1
9723	Thursday, October 23, 2008	10:54:09 PM	36.40	23.01	176.14	22.02	95.70%	22.50	22.94	97.77%	99.70%	2	1
9722	Thursday, October 23, 2008	9:52:11 PM	34.85	21.63	154.38	20.71	95.76%	21.19	21.37	97.96%	98.77%	2	1
9721	Thursday, October 23, 2008	8:59:04 PM	36.72	23.20	133.92	22.33	96.24%	22.72	22.70	97.94%	97.83%	2	1
9720	Thursday, October 23, 2008	7:56:25 PM	34.81	21.61	111.91	20.67	95.63%	21.17	21.40	97.97%	99.04%	2	1
9719	Thursday, October 23, 2008	7:08:40 PM	37.17	21.65	91.46	20.46	94.52%	21.19	21.01	97.86%	97.06%	2	1
9718	Thursday, October 23, 2008	4:52:29 PM	66.49	63.83	71.25	60.97	95.52%	62.22	61.54	97.47%	96.40%	5	1
9717	Thursday, October 23, 2008	2:02:47 PM	31.00	17.86	354.27	17.18	96.17%	17.45	17.53	97.70%	98.12%	2	1
9716	Thursday, October 23, 2008	1:12:05 PM	36.24	23.27	338.10	22.44	96.43%	22.62	22.47	97.22%	96.55%	2	1
9715	Thursday, October 23, 2008	12:08:56 PM	37.29	23.73	316.72	22.75	95.88%	23.00	22.86	96.93%	96.31%	2	1
9714	Thursday, October 23, 2008	11:12:05 AM	40.82	24.13	294.74	22.87	94.79%	23.38	23.42	96.86%	97.06%	2	1
9713	Thursday, October 23, 2008	9:49:48 AM	39.41	25.33	272.87	24.32	96.04%	24.75	24.84	97.71%	98.09%	2	1
9712	Thursday, October 23, 2008	8:37:32 AM	37.48	24.19	249.36	22.85	94.46%	23.29	23.23	96.28%	96.03%	2	1
9711	Thursday, October 23, 2008	7:30:30 AM	36.92	23.40	227.12	22.01	94.07%	22.31	22.63	95.33%	96.69%	2	1

## Studies

- Steve and I made new core vertical measurements, this time making sure the trunk attenuator did not change during the measurement. The last file on P31 in each band has the data with both trunk and atten settings in the title. If you recalculate the changes with this data, we should be able to give it a try tomorrow.

## Requests

- Put in new optimal Core Vertical Cooling Settings**
  - Based on yesterday's core vertical Transfer Function measurements, Valeri made calculations to determine optimal settings.
    - The calculations suggest that changes are needed to the trombones in all three bands. The delays that we added during our last access gives us the room we need to get these correct.
    - The calculations also suggest that we need to modify the attenuation in bands 2 and 3. Unfortunately we don't have that much room in the system, and a tunnel access would be needed to get the complete change in.
    - We will not ask for the tunnel access yet, however.
    - We will instead try lowering overall system gain and putting what changes we can put in.
    - If we run ok, we'll leave it in over the weekend.
    - If not, we'll revert to this mornings settings for the weekend.
    - We may ask for an access early next week to make the final attenuation changes.
- Core Transverse Cooling Measurements**
  - Beam conditions:
    - ~45mA of beam in the Accumulator.
  - Background
    - This is a repeat of the core cooling study completed first on the evening of

- Friday, October 3rd (See <http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar08&action=view&page=423&anchor=202716&hilite=20:27:16->), and then again on the morning of Friday, October 17th (<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar08&action=view&page=441&load=>).
  - The October 3rd set of measurements were taken before the Core Vertical Equalizer was installed.
  - The October 17th set of measurements were taken after the Core Vertical Equalizer was installed. Initial indications are that maybe the cooling is worse with the new vertical equalizer.
  - Transfer function measurements made on October 13th (<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar08&action=view&page=433&anchor=135730&hilite=13:57:30->) determined that the trombone for each band needed to go longer by one wavelength; however, band 2 did not have enough range. This means the measurements taken on October 17th were not with a completely optimized system.
  - Adding additional cable delay requires a tunnel access, which was completed on Wednesday, October 22nd (<http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar08&action=view&page=451&scroll=false&load=>).
  - This study repeats core cooling measurements made on October 3rd and 17th, with the new equalizer in place, with the appropriate cable delays to properly tune the trombones.
  - The study
    - The studier is Jim Morgan
    - The estimated time is 2+ hours.
    - The study involves blowing the beam up and cooling it back down for each core vertical cooling band.
3. **Static Stacktail Measurements.**
- Conditions:
    - This study should be started directly before a set of transfers to Recycler. We want a 30mA stack.
    - Prior to the start of this study, we would like five supercycles of stacking without SY120 or Studies events in the TLG. This will allow setup the stacktail in a known condition for the study.
  - The Study:
    - A Numi-only TLG is loaded
    - The studier is Dave Vander Meulen
    - The estimated study time is 20 minutes.
  - After the study is complete, we can transfer to the Recycler.
  - Leave > 10mA of beam behind for the next study.
4. **Stacktail Transfer Function Measurements:**
- Conditions:
    - This study will start with 10mA leftover after a set of transfers.
  - The Study
    - The studiers are Steve Werkema and Ralph Pasquinelli.
    - The estimated study time is 4 hours.
    - If beam is lost during any of the measurements, we need to be able to stack for short periods of time to replace the beam for the next set of measurements.
5. **Core momentum cooling study**
- Conditions
    - This study requires no stacking and circulating beam in the Accumulator.
  - Study
    - Test the cooling of the 4-8GHz momentum TWTs individually and then together.
    - This study will help determine if it would be worth while to consider adding an additional 4-8GHz momentum cooling tank during a future shutdown.
    - The studier is Dave Vander Meulen.
    - Estimated time without stacking is one hour.

## The Numbers

# The Numbers

- Paul's Numbers
  - Most in an hour: 24.23 mA at Fri Oct 24 03:12:12 CDT 2008
  - Best: 27.01 mA on 03-Jun-08
  - Average Production 19.75 e-6/proton Best: 25.41 e-6/proton on 01/30/2008
  - Average Protons on Target 7.04 e12 Best: 8.77 e12 on 07/24/2007
  - Largest Stack 67.18 mA Best: 313.58 mA on 02/18/2008
- Al's Numbers
  - Stacking
    - Pbars stacked: 496.83 E10
    - Time stacking: 23.05 Hr
    - Average stacking rate: 21.56 E10/Hr
  - Uptime
    - Number of pulses while in stacking mode: 35024
    - Number of pulses with beam: 32459
    - Fraction of up pulses was: 92.68%
  - The uptime's effect on the stacking numbers
    - Corrected time stacking: 21.36 Hr
    - Possible average stacking rate: 23.26 E10/Hr
    - Could have stacked: 536.09 E10/Hr
  - Recycler Transfers
    - Pbars sent to the Recycler: 504.57 E10
    - Number of transfers : 43
    - Number of transfer sets: 19
    - Average Number of transfer per set: 2.26
    - Time taken to shoot including reverse proton tuneup: 00.26 Hr
    - Transfer efficiency: 95.49%
  - Other Info
    - Average POT : 7.78 E12
    - Average production: 19.68 pbars/E6 protons
  -

Other